

WHAT IS CLAIMED IS:

1. A wafer support device comprising:

- a fixed base;
 - a guiding device on said fixed base;
 - a movable base disposed so as to move in a vertical direction with respect to the fixed base by said guiding device;
 - a first pressing device fixed on the fixed base, said first pressing device pressing said movable base;
 - a θ stage rotatably disposed on said movable base with the vertical direction as a rotation axis;
 - a linear motor fixed on said fixed base;
 - a contact bar disposed on said movable base;
 - a load control device controlling a load of pressing; and
 - a controller controlling a pressing force by said first pressing device based on said load detected by a load sensor,
- wherein said first pressing device has a cylinder which is fixed on said fixed base and has a main pressurizing chamber and a sub-pressurizing chamber, a piston rod vertically moving in the main pressurizing chamber and the sub-pressurizing chamber, respectively, a main pressure controller controlling a pressure in said main pressurizing chamber, and a sub pressure controller controlling a pressure in said sub-pressurizing chamber.

2. The wafer support device according to claim 1,

further comprising an adsorption stage disposed on said θ stage, said adsorption stage

fixing a wafer.

3. The wafer support device according to claim 1,

wherein said load control device comprises said load sensor disposed on said linear motor, said load sensor detecting a load of pressing by said contact bar when said contact bar contacts said movable base.

4. The wafer support device according to claim 1,

wherein said guiding device comprises a first cross roller guide.

5. The wafer support device according to claim 3, further comprising

a sensor base which said load sensor is mounted on,

a second cross roller guide guiding said sensor base in a vertical direction with respect to said fixed base,

a position sensor fixed on said fixed base, said position sensor detecting a vertical position of said sensor base, and

a driving member which said sensor base is mounted on, said driving member driving said sensor base in the vertical direction and controlling a vertical position of said load sensor.

6. The wafer support device according to claim 5,

wherein said driving member has a fixed coil fixed on the fixed base, and a movable magnet to be floated by a magnetic action with said fixed coil.

7. The wafer support device according to claim 5, wherein said driving member has a

motor fixed on said fixed base and a ball screw disposed on a driving axis of said motor,
wherein said sensor base is vertically driven by reciprocally rotating said ball screw.

8. The wafer support device according to claim 5,
wherein said guiding device comprises an air bearing.

9. The wafer support device according to claim 5,
wherein said guiding device comprises a plurality of second pressing devices.

10. A wafer support method comprising:
providing a movable base having a stage loading a wafer;
providing compressed air into a main pressurizing chamber or a sub-pressurizing chamber;
moving said movable base by said compressed air in said main pressurizing chamber or said sub-pressurizing chamber;
moving said movable base by cross roller guide on a fixed base;
detecting a position of said movable base; and
controlling said position of said movable base according to said position detected.

11. The wafer support method according to claim 10,
wherein said step of moving said movable base comprises driving said movable base by a linear motor.

12. The wafer support method according to claim 10,
wherein said step of moving said movable base comprises driving said movable base by
a rotary motor.

13. The wafer support method according to claim 10, further comprising controlling an
amount of said compressed air into said main pressurizing chamber or said sub-pressurizing
chamber.

14. A wafer support device comprising:
a fixed base;
a movable means for moving vertically with respect to the fixed base;
a guiding means for guiding said movable means in a vertical direction;
a pressing means for pressing said movable base;
a driving means for driving said movable means;
a detecting means for detecting a position of said movable means;
a control means for controlling a pressing force by the pressing means,
wherein said pressing means comprises a means for moving by pressurizing compressed
air.

15. The wafer support device according to claim 14,
wherein said control means for controlling a pressing force by the pressing means is
based on a load detected by said detecting means.